IN THE CLAIMS:

1. (Currently amended) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a housing containing said sensor transponder, wherein said housing is hermetically sealed;

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor connected to receive power derived from said radiation receiving device;

a sensor ~~that can detect more than two values of a parameter,~~ connected to provide sensor data to said processor;

a transmitting device connected to receive power derived from said radiation receiving device and connected for transmitting data derived from said sensor to said reader, wherein no feed through from said transmitting device passes through said housing;

a data receiving device, wherein said data receiving device is connected for receiving digital data derived from said reader and for providing said digital data to said processor.

2. (Original) An electronic system as recited in claim 1, wherein said sensor comprises an analog device.

3. (Original) An electronic system as recited in claim 2, wherein said sensor transponder further comprises an analog/digital converter.

4. (Currently amended) An electronic system as recited in claim 1, wherein said transmitting device ~~capable of transmitting~~ includes a switched reactance circuit.

5. (Previously presented) An electronic system as recited in claim 4, wherein said switched reactance circuit comprising a reactive component connected to switchably affect electromagnetic radiation radiated from said reader.

6. (Previously presented) An electronic system as recited in claim 5, wherein said reader includes a radiation transmitting device, wherein said reader comprises a circuit to detect changes in loading of said radiation transmitting device, as a result of switching of said switched reactance circuit in said sensor transponder.

7. (Previously presented) An electronic system as recited in claim 1, wherein said radiation receiving device comprises at least one from the group including a tap and a capacitive divider for providing power to at least one from the group including said sensor and said processor.

8. (Previously presented) An electronic system as recited in claim 7, wherein said radiation receiving device comprises multiple taps, wherein tap location is dynamically selected depending on loading to provide impedance matching and efficient energy transfer.

9. (Currently amended) An electronic system as recited in claim 1, wherein said ~~sensor transponder is located in~~ housing comprises a metal enclosure and wherein said radiation receiving device is tuned to receive radiation at a frequency sufficiently low so a substantial portion of said radiation is able to penetrate through said metal enclosure~~, there being no feed through passing through said enclosure~~.

10. (Original) An electronic system as recited in claim 9, wherein said frequency is less than 125 kHz.

11. (Original) An electronic system as recited in claim 9, wherein said frequency is less than about 44 kHz.

12. (Original) An electronic system as recited in claim 9, wherein said frequency of about 4 kHz.

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14. (Currently amended) An electronic system as recited in claim ~~13~~ 1, wherein said sensor transponder is for implanting in living tissue.

15. (Original) An electronic system as recited in claim 14, wherein said sensor transponder is for implanting in a bone.

16. (Original) An electronic system as recited in claim 1, wherein said processor includes an integrated clock.

17. (Original) An electronic device as recited in claim 16, wherein said integrated clock comprises an RC clock.

18. (Original) An electronic system as recited in claim 1, wherein said sensor transponder further includes a non-volatile memory for storing sensor data.

19. (Original) An electronic system as recited in claim 1, wherein said sensor transponder further includes an energy storage device.

20. (Previously presented) An electronic system as recited in claim 1, wherein said energy storage device is connected to provide a higher power to said sensor than is available from said radiation receiving device.

21. (Previously presented) An electronic device as recited in claim 1, further comprising a receiver resonant tank circuit and a power-using device, said receiver resonant tank circuit for receiving electromagnetic radiation for powering said power-using device, said receiver resonant tank circuit including said radiation receiving device, wherein said radiation receiving device includes a first end and a second end, wherein said receiver resonant tank circuit further includes an impedance matching circuit, wherein said impedance matching circuit is connected to said radiation receiving device to provide greater current to said power-using device than would be available to said power-using device if said power-using device were connected between said first and said second end.

22. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit comprises a tap between said first and said second end.

23. (Original) An electronic device as recited in claim 22, wherein said tap is provided at a location between said first end and said second end so said power-using device does not substantially degrade Q factor of said receiver resonant tank circuit.

24. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit comprises a plurality of taps between said first and said second end, wherein connection is switchably provided to one of said plurality of taps to most closely impedance match to impedance of said power using device.

25. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit comprises a capacitive divider.

26. (Original) An electronic device as recited in claim 25, wherein said capacitive divider provides an output set so said power-using device does not substantially degrade Q factor of said receiver resonant tank circuit.

27. (Previously presented) An electronic device as recited in claim 21, wherein said impedance matching circuit provides an output so impedance of said power-using device approximately matches impedance presented by said radiation receiving device at said output.

28. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit provides an output so power transfer to said receiver resonant tank circuit from said electromagnetic radiation is not substantially degraded for expected power consumption of said power-using device.

29. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit provides an output so power transfer to said power-using device from said receiver resonant tank circuit is optimized for expected power consumption of said power-using device.

30. (Previously presented) An electronic device as recited in claim 21, wherein said impedance matching circuit has an output that can be dynamically varied during operation under the control of said processor, so power transfer to said receiver resonant tank circuit from said electromagnetic radiation is optimized for power actually being consumed by said power-using device and so power transfer to said power-using device from said receiver resonant tank circuit is optimized for expected power consumption of said power-using device.

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36. (Previously presented) An electronic device as recited in claim 1, wherein said reader includes an rf receiver, wherein said transponder includes an rf transmitter for transmitting data to said reader.

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45. (Previously presented) An electronic system as recited in claim 1, further comprising a plurality of said remotely powered and remotely interrogated sensor transponders, wherein each said sensor transponder is connected for receiving all power for operating said sensor transponder derived from power radiated from said reader, wherein each said sensor transponder has an address and wherein each said sensor transponder has a system to transmit data so as to avoid collisions.

46. (Original) An electronic system as recited in claim 45, wherein said system to avoid collisions includes a random timing generator.

47. (Previously presented) An electronic system as recited in claim 45, wherein each of said plurality of sensor transponders includes data logging.

48. (Previously presented) An electronic system as recited in claim 45, wherein each of said plurality of networked sensor transponders includes energy storage.

49. (Previously presented) An electronic system as recited in claim 45, wherein each of said plurality of networked sensor transponders includes two way communication.

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51. (Currently amended) An electronic system as recited in claim ~~13~~ 1, wherein said transponder is part of a medical implant.

52. (Previously presented) An electronic system as recited in claim 51, wherein said transponder is part of an orthopedic implant.

53. (Currently amended) An electronic system as recited in claim ~~13~~ 1, further comprising ~~a housing~~ an orthopedic implant facing said transponder, wherein said transponder senses position with respect to said ~~housing~~ orthopedic implant.

54. (Currently amended) An electronic system as recited in claim ~~13~~ 1, wherein said sensor comprises at least one from the group including a displacement sensor, a pressure sensor, a force sensor, a torque sensor, and a temperature sensor.

55. (Previously presented) An electronic system as recited in claim 54, wherein said displacement sensor comprises a variable reluctance transducer.

56. (Previously presented) An electronic system as recited in claim 1, further comprising a member subject to corrosion, wherein said sensor is located to detect corrosion of said member.

57. (Previously presented) An electronic system as recited in claim 56, wherein said transponder can transmit at least one from the group including a change in said sensor data and sensor data within an acceptable limit.

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71. (Previously presented) An electronic system as recited in claim 1, wherein said transmitting device includes a switched reactance circuit.

72. (Previously presented) An electronic system as recited in claim 1, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

73. (Previously presented) An electronic system as recited in claim 1, wherein said data receiving device includes a demodulator.

74. (Previously presented) An electronic system as recited in claim 1, further comprising an RF transceiver, wherein said data receiving device and said transmitting device are included in said RF transceiver.

75. (Previously presented) An electronic system as recited in claim 1, wherein said processor is connected to receive said digital data for performing at least one from the group including: reprogramming said processor, triggering data logging, initiating transmission of stored data, and initiating calibration.

76. (Currently amended) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor connected to receive power derived from said radiation receiving device;

a sensor ~~that can detect more than two values of a parameter, said sensor~~ connected to provide sensor data to said processor;

a circuit connected to said sensor for ~~providing~~ performing sensor calibration; and

a transmitting device connected to receive power derived from said radiation receiving device and connected for transmitting data derived from said sensor to said reader.

77. (Currently amended) An electronic system as recited in claim 76, wherein said circuit for ~~providing~~ performing sensor calibration includes at least one from the group including a known resistance and a known reactance switchably connected across said sensor.

78. (Currently amended) An electronic system as recited in claim 76, wherein said circuit for ~~providing~~ performing sensor calibration is under processor control.

79. (Previously presented) An electronic system as recited in claim 76, wherein said processor includes a program to perform said sensor calibration automatically.

80. (Previously presented) An electronic system as recited in claim 76, wherein at least one from the group including said processor and said reader includes a program to adjust sensor data based on results of said calibration.

81. (Previously presented) An electronic system as recited in claim 76, wherein said transmitting device includes a switched reactance circuit.

82. (Previously presented) An electronic system as recited in claim 76, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

83. (Previously presented) amended) An electronic system as recited in claim 76, further comprising a data receiving device, wherein said data receiving device includes at least one from the group including a demodulator and an RF transceiver, wherein said RF transceiver includes said data receiving device and said transmitting device.

84. (Currently amended) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor connected to receive power derived from said radiation receiving device;

a sensor ~~that can detect more than two values of a parameter, said sensor~~ connected to provide sensor data to said processor;

an RC clock connected to encode clock data with data derived from said sensor; and

a transmitting device connected to receive power derived from said radiation receiving device and connected for transmitting clock data encoded with data derived from said sensor to said reader.

85. (Previously presented) An electronic system as recited in claim 84, wherein said reader includes a processor programmed to recover sensor data from a signal including both sensor data and clock data.

86. (Previously presented) An electronic system as recited in claim 84,wherein said sensor transponder can withstand forces higher than 90,000 G's.

87. (Previously presented) An electronic system as recited in claim 84, wherein said transmitting device includes a switched reactance circuit.

88. (Previously presented) An electronic system as recited in claim 84, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

89. (Previously presented) An electronic system as recited in claim 84, wherein said receiving device includes a demodulator.

90. (Previously presented) An electronic system as recited in claim 84, further comprising an RF transceiver, wherein said receiving device and said transmitting device are included in said RF transceiver.

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96. (New) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor connected to receive power derived from said radiation receiving device;

a sensor connected to provide sensor data to said processor;

an RF transmitter connected to receive power derived from said radiation receiving device and connected for transmitting data derived from said sensor; and

a data receiving device, wherein said data receiving device is connected for receiving digital data derived from said reader and for providing said digital data to said processor.

97. (New) An electronic system as recited in claim 96, further comprising an RF transceiver, wherein said data receiving device and said RF transmitter are included in said RF transceiver.

98. (New) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor connected to receive power derived from said radiation receiving device;

a sensor connected to provide sensor data to said processor;

an actuator connected to receive power derived from said radiation receiving device;

a transmitting device connected to receive power derived from said radiation receiving device and connected for transmitting data derived from said sensor to said reader; and

a data receiving device, wherein said data receiving device is connected for receiving digital data derived from said reader and for providing said digital data to said processor.

99. (New) An electronic system as recited in claim 96, wherein said actuator includes at least one from the group consisting of a solenoid, a pump, a motor, a mechanical switch, and a piezoelectric device.

100. (New) An electronic system as recited in claim 53, wherein said transponder includes a sensor for measuring distance between said sensor and said orthopedic implant.

101. (New) An electronic system as recited in claim 100, further comprising a component between said sensor and said orthopedic implant, wherein a change in said distance between said sensor and said orthopedic implant is a measure of wear of said component.